

Claims

1. Device (100) for the coolant cooling of a gas turbine (2), in which a number of interconnected evaporator tubes (140, 150, 160, 5 170) are arranged in a coolant channel (102) connected to the gas turbine (2) for a flow medium for the formation of a forced throughflow steam generator.
2. Device (100) according to Claim 1, wherein compressor air (L) 10 from the gas turbine (2) can be applied to the coolant channel (102).
3. Device (100) according to Claim 1 or 2, wherein the coolant channel (102) is designed for direct flow of the coolant for the gas 15 turbine (2) in an essentially horizontal direction, whereby the longitudinal axis of the evaporator tubes (140, 150, 160, 170) is essentially aligned in a vertical direction.
4. Device (100) according to one of Claims 1 to 3, wherein each of 20 the evaporator tubes (140, 150, 160, 170) has internal fins.
5. Device (100) according to one of Claims 1 to 4, wherein the flow medium can be applied to the evaporator tubes (140, 150, 160, 170) via a supply line (40, 112) preceding them on the inlet side, 25 whereby means to set the throughflow rate of the flow medium are connected to the supply line (40, 112).
6. Device (100) according to Claim 5, wherein the means of setting the throughflow rate of the flow medium include a flow restrictor 30 (110, 206, 116, 226) connected to the supply line (40, 112).

7. Device (100) according to Claim 5 or 6, wherein the means of setting the throughflow rate of the flow medium are assigned a control system (180) which is connected on the inlet side to a temperature sensor (186, 190) assigned to the coolant channel (102).

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8. Gas and steam turbine (1, 1', 1") with a waste heat steam generator (30) connected on the exhaust gas side of a gas turbine (2), wherein the heating surfaces are connected to the water-steam circuit (24) of a steam turbine, and with a device (100) assigned to the gas turbine (2) according to one of Claims 1 to 7, wherein the evaporator tubes (140, 150, 160, 170) are connected on the inlet side via a supply line (40, 112) to the feedwater train of the water-steam circuit (24) of the steam turbine.

15 9. Gas and steam turbine (1, 1', 1") according to Claim 8, wherein the evaporator tubes (140, 15D, 160, 170) of the device (100) assigned to the gas turbine (2) for coolant cooling are connected on the outlet side to a high-pressure stage of the water-steam circuit (24).

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10. Gas and steam turbine (1, 1', 1") according to Claim 8 or 9, wherein the supply line (40, 112) is connected on the inlet side via a first partial flow line to a first partial component of the feedwater train preceding a feedwater preheater (44) and via a second partial flow line (214) to a second partial component of the feedwater train downstream of the feedwater preheater (44).

25 11. Gas and steam turbine (1, 1', 1") according to Claim 10, wherein in each of the first and second partial flow lines (202, 214), means of setting the throughflow rate of the respective partial flow are connected to flow medium to which a control system (180) is assigned, via which the flow ratio of the partial flows is adjustable in the partial flow lines (202, 214, 222) as a function

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of a characteristic value for a temperature value of the coolant to be cooled.